

## CLAIMS

[1] A capacity control valve comprising:

a solenoid portion;

a tube placed in said solenoid portion;

a movable core, wherein said moveable core forms a slide surface and a non-contact surface on the outer diameter surface, wherein said slide surface is fitted to said tube, wherein the diameter of said non-contact surface is formed smaller than the diameter of said slide surface, wherein the axial length of said slide surface is formed shorter than the axial length of said non-contact surface;

a solenoid rod portion, wherein said solenoid rod portion is coupled to said movable core and forms a joint surface on the free end portion of said solenoid rod portion placed opposite to said movable core;

a fixed core, wherein said fixed core forms an inner bore and is placed in an opposing manner against said movable core, the inner bore loosely fitted to said solenoid rod portion; and

an actuation rod, wherein said actuation rod forms an abutting face and a valve body, the abutting face being engaged with said joint surface of said solenoid rod portion, the valve body opening or closing a control fluid passage hole;

wherein either one of said joint surface of said solenoid rod portion or said abutting face of said actuation rod is formed a concave cone-shape surface while the other is formed a convex cone-shape portion.

[2] A capacity control valve according to claim 1, wherein a bottom face of said concave cone-shape surface is formed as a wide area of either a planar surface or a circular cross section, wherein a head portion of said convex cone-shape portion is truncated to form a truncated cone surface, the

truncated cone surface corresponding to the bottom face of said concave cone-shape surface;

[3] A capacity control valve according to claim 1 or claim 2, wherein a cone angle  $\beta$  of said concave cone-shape surface is formed larger than a cone angle  $\alpha$  of said convex cone-shape portion by 0.5 to 6 degrees.

[4] A capacity control valve according to claim 1, wherein said concave cone-shape surface abuts against the convex cone-shape portion of said actuation rod before said solenoid rod portion contacts the inner bore of said fixed core.

[5] A capacity control valve according to claim 1, wherein the slide surface is placed on the end portion of said outer diameter surface of said movable core and the axial length of the slide surface is not more than one quarter of the total length of the outer diameter surface.

[6] A capacity control valve according to claim 1, wherein the slide surface is formed to have a bight cross section.